Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-96. (Canceled)

97. (New) Interface link layer device connected to a first data bus and via a transmission path to at least one other interface link layer device that is connected to a respective second data bus of a plurality of second data busses, comprising:

uplink means to accept a data packet from the first data bus that has a predetermined destination or that has a channel number of a data channel that leads from the first data bus to one of said respective second data bus and to transmit it via said transmission path to said other interface link layer device serving said predetermined destination; and

downlink means to output data packets received via said transmission path from one of said at least one other interface link layer device to a predetermined destination on the first data bus,

wherein said uplink means comprise a first register that reflects destination identifiers which will be accepted, and

wherein said destination identifier is a bus identifier of said respective second data bus and said first register comprises a bus enable register identifying said respective second data bus that is serving said predetermined destinations.

98. (New) Interface link layer device according to claim 97, wherein said interface link layer device sets up a direct connection to each one of:

said at least one other interface link layer device and

said uplink means comprise a second register that includes a destination identifier of each one of said at least one other interface link layer device.

99. (New) Interface link layer device according to claim 98,

wherein said interface link layer device is able to route data packets to another interface link layer device it has a direct connection with.

100. (New) Interface link layer device according to claim 98, wherein said uplink means comprise a third register that stores an available bandwidth of a connection to another interface link layer device it has a direct connection with.

101. (New) Interface link layer device according to claim 97, wherein said downlink means comprises a channel number assignment unit that assigns an appropriate channel number to a data packet received via said transmission path that gets forwarded on the first data bus on a channel different to the channel the data packet has left its source on the respective second data bus.

102. (New) Interface link layer device according to claim 97, wherein said uplink means comprises a packetizer that is able to repack data packets received from the first data bus into a format of the transmission path that is different to the format of the first data bus.

103. (New) Interface link layer device according to claim 97, wherein said downlink

means comprises a packet separator that is able to repack data packets received from the transmission path into a format of the first data bus that is different to the format of the transmission path.

104. (New) Interface link layer device according to claim 97, further comprising:

a controllable switch to route predetermined data packets received on a data channel of the transmission path via another data channel of the transmission path to another interface link layer device.

105. (New) Interface link layer device according to claim 97,

wherein said interface link layer device forwards data packets from said first data bus with a destination of the interface link layer device via said transmission path to another interface link layer device which is connected to one of said plurality of second data busses serving only one further destination.

106. (New) Interface link layer device according to claim 97,

wherein said interface link layer device forwards all data packets from said first data bus serving only one predetermined destination via said transmission path to another interface link layer device which is connected to one of saidsecond data busses.

107. (New) Interface link layer device according to claim 97,

wherein said interface link layer device translates a destination of a data packet directed to an interface link layer device into a predetermined other destination which is the only further

destination on the respective data bus connected to said other destination and/or it translates a predetermined source of a data packet directed to a predetermined destination into a source of an interface link layer device.

108. (New) Interface link layer device connected to a first data bus and via a transmission path to at least one other interface link layer device that is connected to a respective second data bus of a plurality of second data busses, comprising:

uplink means to accept a data packet from the first data bus that has a predetermined destination or that has a channel number of a data channel that leads from the first data bus to one of said respective second data bus and to transmit it via said transmission path to said other interface link layer device serving said predetermined destination; and

downlink means to output data packets received via said transmission path from one of said at least one other interface link layer device to a predetermined destination on the first data bus,

wherein said uplink means comprise a first register that reflects destination identifiers which will be accepted, and

wherein said destination identifier is a node identifier and said first register comprises a node enable register identifying at least one predetermined destination.

109. (New) Interface link layer device connected to a first data bus and via a transmission path to at least one other interface link layer device that is connected to a respective second data bus of a plurality of second data busses, comprising:

uplink means to accept a data packet from the first data bus that has a predetermined

destination or that has a channel number of a data channel that leads from the first data bus to one of said respective second data bus and to transmit it via said transmission path to said other interface link layer device serving said predetermined destination; and

downlink means to output data packets received via said transmission path from one of said at least one other interface link layer device to a predetermined destination on the first data bus,

wherein said uplink means comprise a first register that reflects all respective channel numbers of a data channels which will be accepted that carry data packets from one source node of the first data bus to another destination node of one of the plurality of second data busses via said interface link layer device.

110. (New) Interface link layer device according to claim 109, wherein said first register stores an identifier of said source node and/or said destination node.

111. (New) Interface link layer device according to claim 109, wherein said first register stores the speed of said data channel.

112. (New) Interface link layer device according to claim 109, wherein said first register stores the payload of said data channel.

113. (New) Interface link layer device connected to a first data bus and via a transmission path to at least one other interface link layer device that is connected to a respective second data bus of a plurality of second data busses, comprising:

uplink means to accept a data packet from the first data bus that has a predetermined destination or that has a channel number of a data channel that leads from the first data bus to one of said respective second data bus and to transmit it via said transmission path to said other interface link layer device serving said predetermined destination;

downlink means to output data packets received via said transmission path from one of said at least one other interface link layer device to a predetermined destination on the first data bus; and

an acknowledge code generator that generates an acknowledgement to be send to the originator of a data packet accepted from the data bus it is connected to and transmitted via said transmission path to a predetermined destination different to itself.

114. (New) Interface link layer device according to claim 113, wherein said acknowledgement indicates a pending action in case data packet is forwarded to another predetermined destination.

115. (New) Interface link layer device according to claim 113, wherein said acknowledgement indicates a completed action in case a data packet was forwarded to another predetermined destination and said other destination returns a response packet without any errors.

116. (New) Interface link layer device according to claim 113, wherein said acknowledgement indicates an error in case of a data reception error.

117. (New) Interface link layer device connected to a first data bus and via a transmission path to at least one other interface link layer device that is connected to a respective second data bus of a plurality of second data busses, comprising:

uplink means to accept a data packet from the first data bus that has a predetermined destination or that has a channel number of a data channel that leads from the first data bus to one of said respective second data bus and to transmit it via said transmission path to said other interface link layer device serving said predetermined destination;

downlink means to output data packets received via said transmission path from one of said at least one other interface link layer device to a predetermined destination on the first data bus; and

a response packet generator that generates a response to be send via the transmission path to the destination of an acknowledge code received via said first data bus.

118. (New) Interface link layer device according to claim 117, wherein said response indicates a completed action in case a completed action acknowledge code is received.

119. (New) Interface link layer device according to claim 117,

wherein no response is sent in case a pending action acknowledge code is received.

120. (New) Interface link layer device according to claim 117, wherein said response indicates a busy destination in case a busy acknowledge code is received.

121. (New) Interface link layer device according to claim 117,

wherein said response indicates a data error in case a data error acknowledge code is received.

122. (New) Interface link layer device according to claim 117, wherein said response indicates a type error in case a type error acknowledge code is received.

123. (New) Interface link layer device according to claim 117, wherein said response packet generator monitors the request packets output to the first data bus to generate the response packet.